

CLAIMS

part A1
5 1. A process for depositing a coating comprising tungsten oxide on the surface of a glass substrate by directing a gaseous stream comprising tungsten oxyhalide or tungsten chloride and a source of oxygen on to the surface of the glass substrate.

10 2. A process according to claim 1 wherein the coating comprising tungsten oxide comprises a layer of tungsten oxide.

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15 ~~3. A process according to claim 1 or claim 2 wherein tungsten oxyhalide comprises a tungsten oxychloride, preferably tungsten oxytetrachloride.~~

a 20 4. A process according to ~~any preceding claim~~ wherein tungsten oxyhalide or tungsten chloride comprises a substituted tungsten oxyhalide or tungsten chloride.

a 25 5. A process according to ~~any preceding claim~~ wherein the source of oxygen comprises an ester.

25 6. A process according to claim 5 wherein the ester has from 3 to 6 carbon atoms.

a 30 7. A process according to claim 5 ~~or 6~~ wherein the ester is ethyl acetate or butyl acetate.

30 8. A process according to ~~any preceding claim~~ wherein the gaseous stream contains oxygen gas.

a 9. A process according to ~~any preceding claim~~, wherein the ratio of tungsten oxyhalide or tungsten chloride and the source of oxygen are such that the layer of tungsten oxide is deposited as non-stoichiometric tungsten oxide.

a 10. A process according to ~~any preceding claim~~, wherein the gaseous stream contains a source of fluorine.

10 11. A process according to claim 10 wherein the source of fluorine comprises hexafluoroethane, trifluoroacetic acid or hexafluoropropylene oxide.

15 12. A process according to ~~any preceding claim~~, wherein tungsten oxyhalide or tungsten chloride is entrained in the gaseous stream by flowing inert gas over hot tungsten oxyhalide or tungsten chloride.

20 13. A process according to claim 12 wherein tungsten oxyhalide or tungsten chloride is at a temperature in the range 170°C to 210°C.

a 25 14. A process according to claim 12 ~~or 13~~ wherein the inert gas comprises nitrogen.

a 30 15. A process according to ~~any preceding claim~~, wherein the source of oxygen comprises an ester and is entrained in the gaseous stream by contacting said ester with a flowing inert gas.

16. A process according to claim 15 wherein the ester is at a temperature in the range 30°C to 45°C.....

17. A process according to ~~any preceding claim~~ wherein the tungsten oxide layer has a thickness in the range 70 to 180 nm.

18. A process according to ~~any preceding claim~~ wherein the tungsten oxide layer is deposited at a growth rate in the range 3 to 25 nm s⁻¹.

19. A process according to ~~any preceding claim~~ wherein the tungsten oxide layer is overcoated with a further layer.

20. A process for coating glass comprising directing a gaseous stream containing a tungsten compound and a source of oxygen on to the surface of a glass substrate thereby forming a tungsten oxide layer characterised in that the tungsten oxide layer is non-stoichiometric and the tungsten oxide layer is overcoated with a further layer.

21. A process according to claim ~~19 or~~ 20 wherein the further layer comprises a metal oxide.

22. A process according to claims ~~19 to 21~~ wherein the further layer comprises fluorine doped tin oxide.

23. A process according to ~~any preceding claim~~ wherein the process is performed during the float glass production process.

24. A process according to any preceding claim wherein the glass substrate is at a temperature in the range 500°C to 720°C.
- 5 25. A process according to any preceding claim wherein the glass substrate is at a temperature in the range 565°C to 655°C.
- 10 26. A process according to any preceding claim wherein the tungsten oxide layer is deposited on to coated glass.
- 15 27. A process according to claim 26 wherein the coated glass has a coating comprising silicon oxide, preferably containing carbon.
- 20 28. A process for coating glass comprising entraining a tungsten compound in a gas by flowing the gas over a tungsten compound at a temperature below its melting point and directing the gaseous stream on to a glass surface thereby forming a tungsten oxide layer.
- 25 29. A process according to claim 28 wherein the tungsten compound is tungsten halide, tungsten oxyhalide or tungsten carbonyl.

30. A method of coating glass comprising
- (a) providing a glass substrate,
 - (b) preparing a gaseous stream comprising a source of oxygen and a tungsten compound selected from the group consisting essentially of tungsten oxyhalide and tungsten chloride, and
 - (c) directing the gaseous stream on to the glass substrate, thereby depositing a coating comprising tungsten oxide on the glass substrate.
31. A coated glass produced by a process according to any preceding claim.
32. A multiple glazing unit comprising a coated glass according to claim 31 in spaced opposed relation to a glazing pane.
33. A process substantially as herein described with particular reference to any of the Examples 1 - 6.

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